

634.21

P119

6(a)

Grading and Packing Fruits for the Market.



Harvesting Apples

by

A. P. BATEHAM

*President Oregon State Horticultural Society, Vice-President Mosier Fruit
Growers Association, Mosier. Oregon.*

Apple Packing

by

JOHN M. CARROLL

*Director Mosier Fruit Growers Association, Instructor in Packing National
Apple Show, Spokane.*

*written specially for use
in the*



Pacific



Horticultural Correspondence



School



Portland, Oregon

16.432

6119

Suggestions for Study.

Read carefully each chapter or paragraph to find points treated – then return and carefully study several times the important points to fix them in your memory, with the object of taking the examinations later.

Marking passages of special interest to you will enable you to refer to them easily and helps to fix them in your memory.

The italics in this article are by the principal and are intended to call special attention to these passages, which should be carefully studied as an aid in examinations and to fix these points in the memory.

COPYRIGHT, 1912,
BY PACIFIC HORTICULTURAL CORRESPONDENCE SCHOOL.
ALL RIGHTS RESERVED.

HARVESTING APPLES

By A. P. BATEHAM, MOSIER, OREGON.

Determining the time to pick apples is a delicate question, involving experience and practical judgment. Any general rules would be subject to exceptions, owing to climatic conditions, differing varieties and whether the fruit is to be used at home, sold for early consumption or put into cold storage.

PICKING.

One thing can be said, and that is that it has been the prevalent practice to leave the fruit on the trees too long. When this is done, it loses keeping quality to a marked degree. Apples should be clearly not immature nor over-ripe; one condition is as dangerous as the other. Rules generally quoted are to "pick when the seeds begin to blacken"; "when the color characteristic of variety has developed," and "when the fruit yields slightly to pressure." As stated above, none of these rules are invariable, although the combination is pretty sure to touch any conditions.

Taking local practice as a basis, these suggestions may be a guide for improvement. Early picking reduces the loss from wind-storms and wind-falls, but on the other hand, apples color up better when they are left comparatively longer on the tree. The importance of having the fruit nicely colored when picked is so apparent that many growers make a practice of picking over the trees twice; first taking off such apples as are well colored and up to size, leaving others that will improve both in color and size for some little time after the first picked would have fallen or become over-ripe.

Apples stand cold storage best if properly developed and well colored. If picked before development is perfected, they will shrivel and the skin will exhibit scald. If not gathered until the mellowing process has begun, their life will be comparatively short. If the locality or season is too warm, some varieties will ripen prematurely and must be picked without waiting for perfect color. Other high and dry localities may, in

some cool or cloudy season, lack all around in development even up to severely cold weather.

Pickers are generally inexperienced and too often indifferent. The grower must expect to give his closest attention to this work or have a foreman who is competent, both to properly instruct and compel obedience to instructions. It is essential, in order to preserve the keeping quality of apples, that they be *handled with the utmost gentleness*. Few, even experienced fruit handlers, sufficiently realize how much the fruit is injured by unthinking carelessness in handling. When the flesh of fruit is bruised, the cells are crushed, the juices are liberated, fermentation develops and decay results. Any abrasion or cut caused, for instance, by striking the edge of box or by finger nails, or when a stem has been pulled out, affords entrance for mold germs and decay.

Apples that can be reached while standing on the ground should be placed directly into boxes to save handling. A stand or small table about two feet high is very convenient to place the box on. For apples higher on the trees, step ladders must be used. Never lean ladders against the limbs on account of injuries to limbs and fruit spurs. Apples should be *picked by a twist of the wrist*, given with an upward or downward motion at same time. This motion prevents almost entirely the pulling out of stems or the breaking off of fruit spurs.

The best practice of Northwest apple growers is to use buckets or baskets for picking into, rather than any kind of bag, as bruising is inevitable with the latter.

Galvanized buckets of twelve or fourteen quarts capacity and with little or no flare, are generally used.

A stout wire hook can be attached to the bail, to hang the bucket to the ladder or a limb. Some buckets made especially for the purpose have bail and hook in one piece, which is an improvement, as the hook cannot fall against and injure apples.

Several patented picking buckets are on the market that are designed to empty the contents through the bottom, which is a good feature.

With the ordinary bucket it must be lowered into a box and carefully inverted while holding the apples in place with one hand so that they will suffer no fall.

ORCHARD BOXES.

Provide orchard boxes sufficient to supply the picking crew

SOMETHING ENTIRELY NEW.

Pacific Horticultural Correspondence School

Yeon Building

Portland, Oregon

¶ The object of this school is to give all the opportunity of a course in Horticulture without leaving home or neglecting business.

¶ The first opportunity offered to orchardists, nurserymen and salesmen for becoming posted along these lines and avoiding the expensive "School of Experience," while carrying on their business.

IT IS a well established fact, which proves conclusively without further argument, that men combining the greatest amount of practical knowledge with the best technical training, are the most successful in all lines of business. Fruit growers, nurserymen and salesmen for the distribution of horticultural products should be fortified with all knowledge possible to successfully prosecute their business. Why invest thousands of dollars and years of time in the fruit business without careful study and preparation? Why expect to make a success of fruit growing, or of nursery work without a thorough knowledge of the business?

If you are a fruit grower and can grow but three to five culls less per tree and change them into first-class fruit, the first year's crop will more than pay the cost of tuition. If you learn a better method of grading and packing your fruit, so as to command a better price, or of tending your orchard, it will save you many times the cost of the course.

If you are a nurseryman and find one new idea whereby you can grow but one or two more trees in each row, or can change but one or two of the 2nd or 3rd grade trees in each row to first class trees; or if as a salesman you can secure one large order on account of the knowledge gained, how much could you afford to pay for the course?

A Short Course student of the Oregon Agricultural College wrote them: "Had I known three years ago what I learned while attending the six weeks Winter Course, it **would have saved me over five thousand dollars.**"

You can study as fast or as slow as you wish, each student in a separate class. This is the great advantage of a Correspondence Course, as the busy man is not compelled to keep up with one who devotes all his time to study. An opportunity for fruitgrower, nurseryman and

and salesman to become better posted in horticulture without losing a day's work.

The booklets received will form a valuable reference library and should be kept and bound by each student, as all booklets will be printed in uniform style, and will be worth the amount of tuition as reference books.

FREE EMPLOYMENT BUREAU.

Agricultural colleges receive many inquiries for their students before they have finished their course, as the large commercial companies are beginning to realize the value of technical training.

For the benefit of our students and friends we have opened a free employment bureau. Fruit growers, nurserymen and others in need of competent help are requested to write us. We will look up references for you free. Parties wishing work should send full particulars including their references, with first letter, to avoid delay.

Good positions secured for energetic men while taking the course, combining a practical with a technical training.

The Following is a Partial List of Authors and Subjects.

A. B. Cordley, M. S., Dean School of Agriculture, Prof. Zoology and Entomology, Oregon Agricultural College, Corvallis, Ore.

"Orchard Insect Pests and Their Remedies."

Claude I. Lewis, M. S. A., Head Department of Horticulture, O. A. C.

"Soils and Their Adaptability to Different Kinds of Fruits.

"Planting Fruit Trees and Vines."

"Care and Cultivation of the Orchard."

A. L. Melander, B. S., M. S., Head Zoology, Washington State College.

"The Practical Control of Apple Diseases and Pests."

How to Identify Pests and Diseases—Their Habits and Characteristics—Methods of Their Control—Sprays and Spray Machinery.

H. S. Jackson, A. B., Prof of Botany and Plant Pathology, O. A. C.

"Fungus and Bacterial Diseases of Fruits and Their Treatment."

H. C. Atwell, Ex-President Oregon State Horticultural Society.

"Planting Fruit Trees and Vines."

W. K. Newell, President Oregon State Board of Horticulture.

J. R. Shepard, Ex-Vice President Oregon State Horticultural Society.

"Care and Cultivation of the Orchard."

A. P. Bateham, President Oregon State Horticultural Society, Director Mosier Fruit Growers Union.

John M. Carroll, For the past four years in charge of Packing School at National Apple Show.

"Grading and Packing Fruits for the Market."

Including picking of the fruit, on apples and prunes.

Salesmanship

E. H. Shepard, Ph.B., Editor "Better Fruit," former Secretary and Manager, present Vice President and Director Hood River Fruit Growers Union.

"Co-operation Among Fruit Growers."

C. A. Malboeuf, Secretary Northwestern Fruit Exchange.

"The Physical and Commercial Side of Marketing."

Also Articles by experts on General and Special Salesmanship.

A. V. Stubenrauch, Field Investigations in Pomology, U. S. Dept. of Agriculture.

"The Handling and Precooling of Fruits for Transportation."

A. W. McDonald, President and Manager Growing Dept. Washington Nursery Co.
"Budding and Grafting."

Herman V. Tartar, B. S., Chemist, O. A. C.
"Soil Fertility and Fertilizers."

W. L. Powers, M. S., Professor Irrigation and Drainage, O. A. C.
"Irrigation Practice."

John H. Lewis, C. E., LL.B., State Engineer, President Board of Control Water Rights, Salem, Ore.
"Water Rights."

Special Courses

a—W. H. Lawrence, A. B., M. S., Horticulturist and Plant Pathologist.
"Apple Growing."

b—C. E. Whisler, Medford, one of the largest growers in Rogue River Valley;
Lecturer Short Course, O. A. C.
"Pear Growing, including Packing."

c—H. S. Gile, Secretary Willamette Valley Prune Growers Association, Salem.
"Prune Growing."

d—J. R. Shepard, Ex-Vice President Oregon State Horticultural Society.
"Cherry Growing."

e—Fred T. Burtlehaus, Sumner, Wash., Expert Grower Small Fruits.
"Small Fruits."

f—J. B. Pilkington, Portland, Ex-Pres. Pacific Coast Association of Nurserymen.
"Ornamentals."

g—E. J. Kraus, B. S., Research Assistant in Horticulture, O. A. C.
"Pollination."

h—H. B. Miller, Ex U. S. Consul to Belfast and New Chwang.
"Foreign Markets."

i—Ferd Groner, one of the largest growers of walnut trees in the Northwest.
"Walnut Growing."

j—R. S. Herrick, B. S., Field Horticulturist, Colorado Agricultural College, Supt.
Teller School of Agriculture and Mechanical Arts.
"Frost Prevention."

k—Britt Aspinwall, Brooks, Ore., largest grower of Logan Berries.
"Logan Berries."

l—Howard Evarts Weed, M. S., Landscape Architect, Portland.
"Landscape Gardening."

Courses in Contemplation

Origin and Introduction of Fruits.

Blooming of Different Varieties and Its Effect on the Fruit.

Peach Growing and Packing.

Climatic Influence on Fruit.

Cost of the Course

The cost of tuition has been placed very low; \$25.00 cash, or \$30.00 in easy payments for complete course, including all pamphlets, which will include about 20 to 25 subjects, and from 40 to 45 separate articles, so as to meet the requirements of each student, who can select the articles especially adapted to his line of work, omitting the others if desired. Few, if any, text books to purchase except those desired for a reference library.

Any book on Horticulture sent postpaid on receipt of publisher's rate.

For further information address, FRANK W. POWER, Principal.

WHAT OTHERS SAY.

Extracts from letters received.

W. J. KERR, President of Oregon Agricultural College.

"Such work as you have outlined will, no doubt, be of great value to many persons engaged in fruit growing, or who may be interested in the nursery business."

A. B. CORDLEY, Dean College of Agriculture, O. A. C.

"I do not see why you should not make a success of your contemplated Correspondence Course in Horticulture. I shall take pleasure in doing anything I can to assist you."

E. R. LAKE, Assistant Pomologist, U. S. Dept. of Agriculture.

"I read with pleasure the announcement of your Correspondence School. You have a good corps of workers, offer attractive subjects, and ought to do a great deal of good work in this way. I certainly wish you success."

E. J. WICKSON, Dean and Director College of Agriculture, Berkeley, Cal.

"If my name will be of any use to you as favoring your work, you are welcome to it."

E. H. SHEPARD, Editor "Better Fruit," Hood River, Ore.; Director and former Manager Hood River Apple Growers Union.

"Correspondence Schools in the East on other lines have developed into big institutions, and it would seem there ought to be a field here for a Correspondence School of Horticulture."

E. H. FAVOR, Assistant Editor of the Fruit Grower, St. Joseph, Mo.

"What you say about opening a correspondence School of Horticulture is very interesting indeed. It seems to me that your schedule for the course will make a very complete course for fruit growing. There are certainly unlimited opportunities for the work you have in mind."

W. S. THORNBUR, Late Professor of Horticulture in State College of Washington.

"I am glad to know that you are organizing a Correspondence School. I think you will have splendid success, because there is such a demand for horticultural information."

BANK REFERENCES USED BY PERMISSION

J. H. ALBERT, President Capital National Bank, Salem, Ore.

"Certainly I have no objection to your referring to the Capital National Bank, and you can refer to me personally also. I will be glad to do whatever I can to boost your enterprise. Really I think there is a great opportunity for it as most of the prospective fruit growers here are from the Middle West and have no experience."

E. W. HAZARD, Cashier U. S. National Bank, Salem, Ore.

"I beg to say that you not only have our permission to use this bank as reference, but we assure you that we will report favorably in regard to the safety on the part of the investor in the School's tuition requirements."

Regarding our financial responsibility refer you also to:

Ladd & Tilton Bank, Portland, Ore.

Lumbermen's National Bank, Portland, Ore.

FRANK W. POWER, B. S., LL. B., Principal, will prepare the introduction, questions and connect the papers into a complete course. The articles will be by the most competent experts. The Principal is Secretary of the Oregon State Horticultural Society, member of the American Association for the Advancement of Science and for 15 years has been actively engaged in horticultural pursuits.

at least until the graders send back empties. A very satisfactory size for these boxes is 14x10x18 inches inside measurement. The ends should be full one inch thick with hand holes in them for lifting the box. The sides and bottoms should be $\frac{3}{8}$ -inch thick. Top cleats are 1x2 inches by $14\frac{3}{4}$ inches long, nailed on flush with outside of ends, driving an 8 penny finishing nail at each end of cleat into the side of the box. Bevel the under corner of the cleats so apples will not be injured on a sharp corner. An additional feature that will add to the durability of the box will be cleats up and down each inside corner of the box, made by ripping sticks $1\frac{1}{2}$ inches square into triangular sections.

Never take shipping boxes into the orchards. Such use is sure to soil them and they are then unfit for shipment. When filled, the boxes should be placed in the shade until they are hauled to the fruit house. If the weather is particularly hot, it is well to leave the boxes in the orchard over night, so that they may be cooled before storing and also that the fruit house may be kept cooler by not opening it up much in the heat of the day.

For hauling from the orchard, the best wagon is a low-wheeled one with wide tires and a platform that overhangs the wheels. A cleat should be around the edges of platform so boxes will not slip off. Provide bolster springs and if there is much distance to haul, or the road is rough, cover the apples loosely with a tarpaulin or sacking so that the top apples in boxes will not roll and joggle against each other, which sometimes makes numerous small bruises.

A well-built packing house should be on every fruit farm. It should be large enough to provide temporary storage for a crop, as there are always contingencies that might prevent prompt shipment. Study well for convenience in the work of sorting, packing and shipping, with abundance of light in the work room. If apples are at all dirty or coated with spray, they should be wiped but not polished. If the sorter wears cotton gloves it will take but a slight twist to clean the apple. If apples are to be wiped, it should be done soon after picking or it will be harder to accomplish. Another reason for sorting and wiping at once is that the orchard boxes may be emptied and the apples stored in shipping boxes ready for the packer.

GRADING.

When graded and sized by hand, about all that can be done is to make two or three grades of two sizes each, leaving the packer to complete the sizing. In a small way, it is possible to be recommended for efficiency or economy. More experience and better judgment is required for grading and sizing than for packing. When apples are delivered in correct manner for packing, it is found that women and girls can turn out satisfactory work rapidly. The need for mechanical help in this department has brought out many inventions which are distinct aids. Some consist of sorting and packing tables arranged conveniently for hand work, others automatically size the apples as sorters feed the different grades to the machine, which, in turn, delivers them to the packing tables. At present, the general practice of the Pacific Northwestern states is to grade apples into three grades known as "Extra Fancy," "Fancy" and "C."

Some shippers do not attempt to grade up to the requirements of an "Extra Fancy" grade, but the apples of that grade are put in the "Fancy," which naturally improves that grade. Local conditions afford the best guide for practice in this regard.

GRADING RULES.

The grading rules of the Northwestern Fruit Exchange for 1912, are here submitted as having a wider application and use than any others:

EXTRA FANCY.—This grade shall consist of sound, smooth, well formed apples only; free from all insect pests, disease, blemishes and physical injuries; free from worms, worm-holes, stings, scale, scab, sun-scald, fungus, dry-rot, decay, water-core, spray burns, bruises, limb-rub, russetting, skin puncture, skin broken at stem. All apples must be of natural color and shape characteristic of the variety. Apples heavily coated with dirt or spray, must be cleaned.

Color requirements for this grade are as follows:

Solid Red Varieties, like Arkansas Black, Gano, Jonathan, Missouri (Pippin), Spitzenberg, Winesap, etc., must have at least 75% of good natural color. McIntosh Red requires 66 2-3% of bright natural color.

Striped or Partially Red Varieties, like Ben Davis, Delicious, Rome Beauty, Stayman Winesap, etc., must have at least 50% of good red color.

Red Cheek or Blush Varieties, like Red Cheek Pippin, Winter Banana, etc., must have a distinctly colored cheek or blush.

Sizes in this grade shall not be smaller than 175's; except that Jonathan, Missouri (Pippin) and Winesaps may be packed as small as 200's.

FANCY.—Apples in this grade must possess the same physical requirements as to soundness and freedom from insect pests, disease, blemishes and physical injuries or defects, as in "Extra Fancy," with the exception that *minimum* defects, such as slight limb-rub and russetting may be accepted. Broken or punctured skin will not be permitted. Slight deviation from proper form may be included, but this will not include clearly mis-shapen fruit. FANCY grade must be considered as representing strictly first-class commercial fruit, fit for any market. Apples heavily coated with dirt or spray must be cleaned.

Color requirements for this grade are as follows:

Solid Red Varieties must have at least 33 1-3 per cent. of good, natural color.

Striped or Partially Red Varieties must have at least 20 per cent. of good red color.

Red Cheek or Blush Varieties must have correct physical qualities, without requirement as to color.

Sizes in this grade shall not be smaller than 175's except as follows: Newton Pippins and other yellow or green "Pippin" varieties, may be packed up to 225's inclusive. *Solid Red* varieties may be packed up to 200's inclusive when containing not less than 50 per cent of good red color. Winesaps and Missouri Pippins may be packed as small as 225's when of not less than 75 per cent of good natural color.

"C" GRADE.—This grade shall be made up of all merchantable apples not included in the "Extra Fancy" or "Fancy" grades. Apples must be free from all insect pests, worms, worm-holes, disease or physical injuries, including skin puncture and broken skin. No requirement as to color except that the fruit must not be clearly immature.

Sizes may be as small as 200's except under unusual circumstances.

Even the "C" grade described above is intended to be fully good enough to justify long distance shipments. Any poorer fruit should only be shipped to meet some special demand of a near-by market and sold as "cooking" apples or "culls." Ultimately in all fruit sections there will be evaporators, canneries,

vinegar and cider factories that will utilize all the poorer stuff and thus relieve the market by removing the competition of that class of fruit which, of course, tends to depress prices on the better grades.

APPLE PACKING

BY JOHN M. CARROLL, MOSIER, ORE.

PREPARING BOX FOR PACKING.—The packing box used should be the *standard box* now in use in the Northwest, which is $10\frac{1}{2} \times 11\frac{1}{2} \times 18$ inches inside dimensions. There are other sized boxes called “special box,” but these are steadily decreasing in use and will soon be obsolete. National legislation may fix the size of our boxes but, if so, these directions will still apply.

The box to be packed must be very clean and be made very neatly. It should be lined with paper. This is done by having two sheets of paper 18×28 inches. Take a sheet of paper, place it over one side of the box, letting the edge come just past the center of the bottom, and the other end hang over the side of the box. In lining the left side of the box, place your right hand flat on the bottom, inside of the box, on top of the sheet of paper, and press down hard enough to put a bulge in the bottom. This makes an opening or extended gap between the side and bottom of box. Let your thumb and fore-finger of the hand in the box press the paper out a little way in this opening so made. As you raise your right hand, this opening closes up and catches a pleat or fold in the lining paper which is needed to keep from bursting the paper when you nail up the box and put a bulge in the bottom.

Do the same with the right side of the box, only using the left hand in the box, letting the two edges of the paper lap a little ways in the bottom. Put in a layer-board and you are ready to pack.

A layer-board is a thin piece of pasteboard cut to fit the box $11 \times 17\frac{1}{2}$ inches. If the heads of the box are not planed smooth on the inside they should be lined, but they need no pleats in the corners.

The method of folding a pleat in the lining paper before putting in the box is a slow process, as it takes as long to put

the lining in after it is folded, as it does to put the paper in and catch the fold in the corner.

APPLE PACKING: In packing apples there are a few general principles that apply to all sizes:

1st—All apples must be well wrapped.

2nd—All apples are placed in the box in the same position.

3rd—All sizes are packed diagonal.

4th—All boxes must have proper bulge, height of ends and compactness.

5th—All the apples in each box must be of uniform size, practically speaking.

First: To obtain the first result we should use the proper sized paper for the apples, which you will find to be:

For 64s and larger..... 12 x 12 in.

For 72s to 96s..... 11 x 11

For 100s to 175s..... 10 x 10

For 188s and smaller..... 9 x 9

To wrap an apple, take the paper in the left hand, letting the paper lay so that the center of the piece rests directly over the palm of the hand; pick up an apple with the right hand and place in center of the paper (this is done by tossing or throwing the apple lightly to place, in order to jerk up the edges of the paper to a position easily handled for the rest of the wrapping), with the stem towards the right hand corner of the paper next to you. Grasp the loose edges of the paper next to you with the right hand, turning it to the right enough to fold that part over the apple, at the same time let the fingers of the left hand fold the loose part of the paper which is from you, giving a slight twist to the left. Then, without moving the apple from the left hand, place it in the box, *stem toward the end of the box* next to you, laying it *on the folds* of the paper and on its cheek. Each apple must be covered all over with paper, drawn down smoothly.

Second: Place each apple in the box *on its cheek* with the *stem towards the end* of the box next to you. This is the general rule. There may be a few exceptions to this in very large sizes, or certain smaller sizes of very flat apples. These very flat apples may be turned, on sizes which make a very open pack, to a diagonal position, but remember that if you turn one to a diagonal position, you *must turn all*, to insure a uniform size, and all must be turned the *same way* so that each

apple rests in exactly the same position. On very large apples you may have to pack some with the stem or blossom up in order to get them to fit compactly in the box, but this is very rare and in very large sizes from 41s to 56s. Remember this: NEVER turn the stem of one apple to the cheek of another apple, for the stem will puncture the cheek and destroy the apple, especially for cold storage.

Third: The *diagonal pack* is the best and easiest made, and therefore should be the only one used. The square pack, where one apple is placed directly on another, is injurious to the fruit, and is not used any more by up-to-date packers. The diagonal packs run in the following names:

Two-one or three layer pack; *two-two* or four layer pack; *three-two* or five layer pack; and *three-three* or six layer pack.

These packs cover all sizes of apples that are ever packed, and are packed exactly alike, only, as the apples vary in size, you add a layer or leave off a layer, as the case may be.

To tell you just what sizes go in each pack, we would have to know the exact shape of the apple: for example, the smallest two-two pack of the Ortley, which is a very long apple, is 88s, while the smallest of the Newtowns is 104s.

TWO-ONE PACK.

Now, to tell when to change from one number of layers to another is this; very large apples (41 size) pack two-one (see fig. 1), that is, with an apple in each corner of the box, the one in the middle will not come in between them to the head of the box, but rests on the other two apples. Now as long as the apples are large enough so that three will not lay in a straight row, they are to be packed the two-one pack.

TWO-TWO PACK.

As soon as the apples are small enough so they will come in a straight row (see fig. 2), then they should be changed and packed a two-two pack; that is, placing an apple in the lower left hand corner of the box, then divide the remaining space by placing an apple between the first apple placed and the side of the box. This leaves two pockets. Place your next two apples in these pockets and so on until you come to the upper end of the box. (See fig. 3.)

The *straight pack* should *never be used* as before stated.

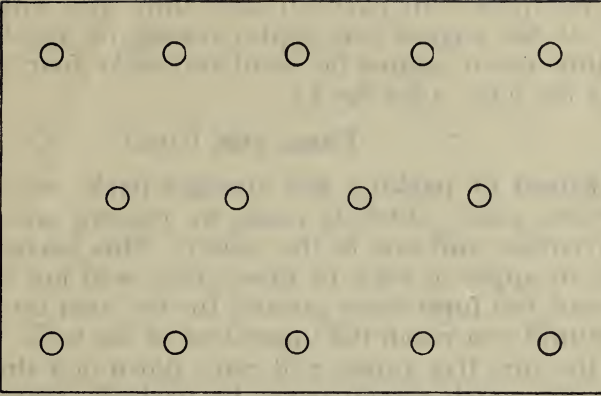


Fig. 1—41 Apples. The right way—
2 1, Diagonal pack, 3 layers.

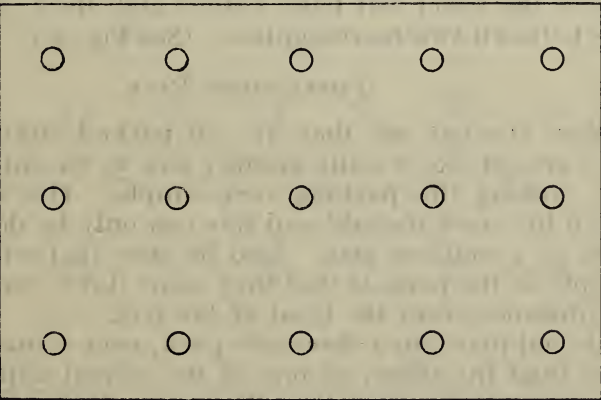


Fig. 2—45 Apples. The wrong way—
Straight pack, 3 layers.

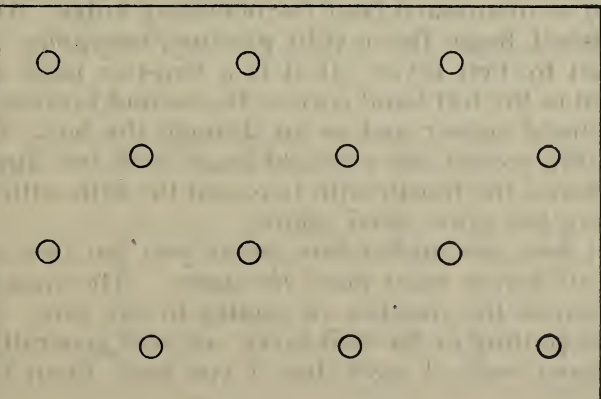


Fig. 3—48 Apples. The right way—
2 2, Diagonal pack, 4 layers.

Now this pack will pack all sizes until you will find that instead of the second two apples resting on the first two, they will slide down against the head and make four apples straight across the box. (See fig. 4.)

THREE-TWO PACK.

Instead of packing this straight pack, we change to the *three-two pack*, which is made by placing an apple in each lower corner and one in the center. This leaves *two pockets*, place an apple in each of these; they will not come down to the head, but form three pockets for the next three apples, and so on until you reach the upper end of the box. Pack this way until the first five apples will come down in a straight row, (as in fig. 6), which should never be packed. Instead, place one apple in the lower left hand corner and divide the remaining space between two more apples. (See Fig. 5.)

THREE-THREE PACK.

Now you can see they are all packed alike, only as the apples are smaller we add another row to the side and another layer, making the packing very simple. The main thing is to *keep the rows straight* and this can only be done by having apples of a uniform size. Also be sure that when you place an apple in the pockets that they come down even, that is, the same distance from the head of the box.

Do not place, in a three-two pack, your center apple closer to one than the other, or one of the second apples will come down closer to the head than the other. *Make all pockets even* except as mentioned later for obtaining bulge. After first layer is finished, begin the next by placing *first apples on the pockets* formed by first layer. If it is a two-two pack and you have started in the left hand corner, the second layer should begin in right hand corner and so on through the box. If a three-two pack, the second layer should begin with two apples, the third with three, the fourth with two, and the fifth with three, always keeping the same sized apple.

It does not matter how many you put in a row in length only *all layers must have the same*. The number in length determines the number of apples in the box. You will find that in putting in the first layer you will generally come out at the upper end all right, but if you have them too loose, pull

PACKS

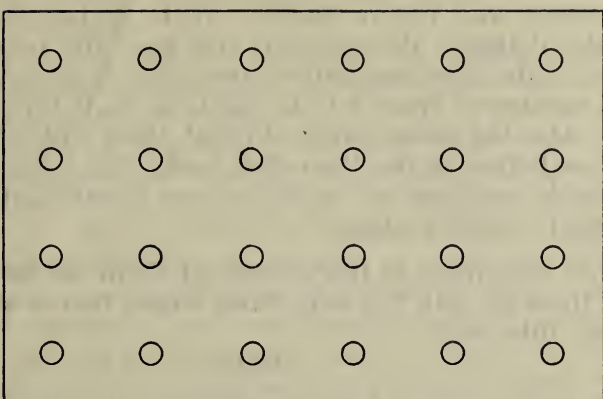


Fig. 4—96 Apples. The wrong way—
Straight pack, 4 layers.

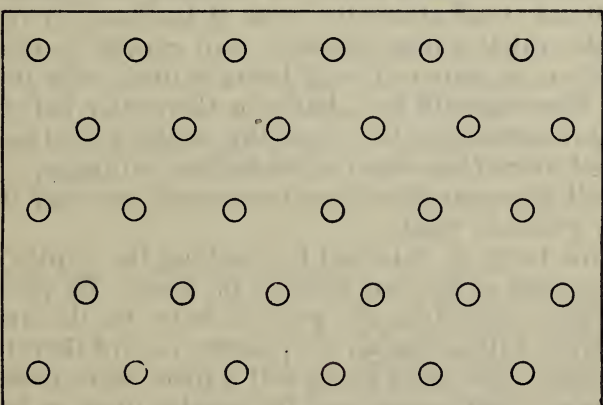


Fig. 5—150 Apples. The right way—
3 2, Diagonal pack, 5 layers.

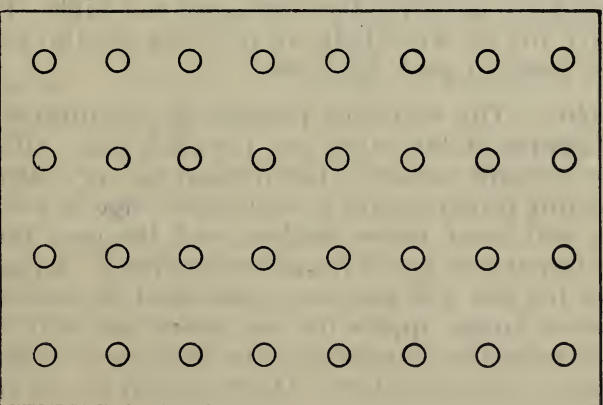


Fig. 6—128 Apples. The wrong way—
Straight pack, 4 layers.

them down and put in another apple in the rows necessary to make it tight. Be sure that you have the *same number* of apples in the *first and third rows*, also in *second and fourth* rows, numbered from left to right, in each layer on two-two pack. Also the same number in *first, third and fifth* rows numbered as before in the three-two pack. Very large apples will have to be selected out to fill as you cannot pull them down and put in another apple.

You may have to place some of them on the stem end to make them fill out, but only those larger than 64s do you have to place this way.

BULGE.

Fourth: When a box is finished, the apples at the end should not stand above the head of the box but very little. Just enough so that a firm pressure (not enough to bruise the apple or the one it rests on), will bring it flush with the head of the box. There should be a *bulge in the center* between the heads (but level across the box from side to side) of at least $1\frac{1}{2}$ inches, and *not more than two inches* before nailing up. When nailed this will give you about *one to one and one-half inch combined bulge*, which is right.

This bulge is obtained by packing the apples a little closer to the center of the box than at the ends. By packing closer in the center, you close the pockets between the apples, and the next layer will not go so deep down in and therefore builds up the center. The ends being left a little more loose, the pockets are open a little more and the apples drop in further and do not build up so much, therefore, are not high. Practice alone will give you the knowledge of just how tight to pack the center or how loose to pack the ends.

Fifth: The secret of putting up an attractive pack is to select apples of the same size for each box. Of course, there will be a slight variation but it must be very slight. The idea of selecting larger apples to make the bulge is wrong, for larger apples will make larger pockets and the next layer will drop down deeper and you have gained nothing. An apple the right size for the box will go in one place just as well as another. If you select larger apples for one place you will have to select smaller ones for somewhere else and your alignment is bad and your uniformity lost. There should be *cardboard placed*

between the layers of all three and four layer packs and on top and bottom of all packs.

A box after being packed, is taken to the nailing press and nailed up. There are several good nailing presses, but the best ones are those which press only on the ends of the lids, and which hold cleats and tops firmly in place until nailed. The box is then piled up ready to ship. After being nailed up they are *always laid on the side* as the sides are straight and never bruise the fruit. *The marking of boxes is very important.* When a box is packed before it is nailed up, it should have the *number of apples* it contains stamped or stenciled on the end of the box, *at the top in the center, and just beneath it the variety.* The stamping should be very plain, and should be at least $\frac{1}{2}$ inch letters. At the *upper right hand corner*, the *growers' name and address* should be placed. These stamps should be used. Then if a label is used, put it on the other end. A neat label adds to the appearance of the package and should be used. A few words as to the use of tiers in speaking of apples. This is a term used to denote different groups of sizes, but just where one group quits and another commences is a question disputed by different sections. Therefore, in contracts and deals for size, *give the number of apples* in the box and then there can be no dispute.

The general use of the words are as follows:

2½ tier	.....	45s and larger
3 tier	.....	48s to 64s inclusive
3½ tier	.....	72s to 88s inclusive
4 tier	.....	96s to 125s inclusive
4½ tier	.....	138s to 163s inclusive
5 tier	.....	175s to 216s inclusive

No. in box.	Name	No. in row	No. in layers	Remarks
41	2-1	5 & 4	3	
45	2-1	5 & 5	3	Very flat apple
48	2-2	3 & 3	4	Long apples
56	2-2	4 & 3	4	
64	2-2	4 & 4	4	
72	2-2	5 & 4	4	
80	2-2	5 & 5	4	
88	2-2	6 & 5	4	
96	2-2	6 & 6	4	



3 0112 072911099

16

PACIFIC HORTICULTURAL CORRESPONDENCE SCHOOL

No. in box.	Name	No. in row	No. in layers	Remarks
104	2-2	7 & 6	4	Very flat apples
100	3-2	4 & 4	5	Very long apples
113	3-2	5 & 4	5	
125	3-2	5 & 5	5	
138	3-2	6 & 5	5	
150	3-2	6 & 6	5	
163	3-2	7 & 6	5	
175	3-2	7 & 7	5	
188	3-2	8 & 7	5	
200	3-2	8 & 8	5	Very flat apple
198	3-3	6 & 5	6	Long apples
216	3-3	6 & 6	6	
234	3-3	7 & 6	6	